

1    WHAT IS CLAIMED IS:

2    1.    A carpet composition, recyclable without a separation step, having  
3        from 50 to 100 percent polymeric material comprising:

4            a)    a tufted primary backing having a primary backing and tufts of  
5                carpet fibers penetrating a bottom surface of the primary  
6                backing and protruding from a top surface of the primary  
7                backing;

8            b)    a secondary backing material; and

9            c)    an extruded adhesive material or a coextrusion of two or more  
10                extruded adhesive materials binding an upper surface of the  
11                secondary backing material to the bottom surface of the primary  
12                backing;

13        wherein the carpet fibers, primary backing material and secondary  
14        backing material are selected from the group consisting of  
15        polypropylene, polyester, acrylics, polyethylene, polyamide, nylon,  
16        wool, cotton, rayon and combinations thereof;

17        and wherein the adhesive material comprises an amorphous  
18        polyethylene copolymer selected from the group consisting of ethylene  
19        methyl acrylate, ethylene normal butyl acrylate, and blends of two or  
20        more polyethylene copolymers.

21    2.    The carpet composition of claim 1 wherein the extruded adhesive  
22        material comprises a middle layer of polyethylene sandwiched between  
23        two outer layers selected from the group consisting of ethylene methyl  
24        acrylate and ethylene normal butyl acrylate.

1    3. The carpet composition of claim 2 wherein the middle polyethylene  
2    layer of the extruded adhesive material is from 10 to 90 weight percent  
3    of the extruded adhesive material and each of the two outer layers is  
4    from 5 to 45 weight percent of the extruded adhesive material.

5    4. The carpet composition of claim 1 wherein the adhesive material  
6    further comprises maleic anhydride.

7    5. The carpet composition of claim 1 wherein the adhesive material is a  
8    coextruded blend of ethylene methyl acrylate copolymers and  
9    polymers selected from the group consisting of low density  
10   polyethylenes, linear low density polyethylenes, high density  
11   polyethylenes, ultra low density polyethylene having a density less  
12   than 0.915 density, ethylene-propylene copolymers, elastomers,  
13   rubber, EPDM rubber, styrenic copolymers of butadiene, styrenic  
14   copolymers of acrylonitrile, styrenic copolymers of ethylene,  
15   metallocene based polyethylenes, polypropylene, polyester, ethylene  
16   acrylic acid copolymers, ethylene methyl acrylic acid copolymers, butyl  
17   acrylate copolymers, ethylene vinyl acetate copolymers, ionomers,  
18   polyamides, and maleic anhydrides.

19   6. The carpet composition of claim 1 wherein the adhesive material has a  
20   thickness of from 0.001 inches to 0.050 inches.

21   7. The carpet composition of claim 1 wherein the adhesive material  
22   further comprises additives selected from the group consisting of flame  
23   retardants, odor reduction additives, scent enhancing additives and  
24   ultra-violet light protection additives.

1 8. The carpet composition of claim 1 wherein the adhesive material  
2 further comprises fillers selected from the group consisting of talc,  
3 calcium carbonate and other inorganic fillers.

4 9. A method of making a carpet, the carpet comprising a tufted primary  
5 backing with a primary backing and tufts of carpet fibers penetrating a top  
6 bottom surface of the primary backing and protruding from a top  
7 surface of the primary backing; a secondary backing material; and an  
8 adhesive material binding an upper surface of the secondary backing  
9 material to the bottom surface of the tufted primary backing; the carpet  
10 fibers, primary backing material and secondary backing material being  
11 selected from the group consisting of polypropylene, polyester,  
12 acrylics, polyethylene, polyamide, nylon, wool, cotton, rayon and  
13 combinations thereof and the adhesive material comprising an  
14 amorphous polyethylene copolymer selected from the group consisting  
15 of ethylene methyl acrylate and ethylene normal butyl acrylate; the  
16 method comprising the steps of:

17 a) extruding a heated sheet of the adhesive material; and  
18 b) continuously fusing together in a two roll nip the upper surface of  
19 the secondary backing and the bottom surface of the tufted primary  
20 backing with the heated sheet.

21 10. A method according to claim 9 wherein the two roll nip comprises a  
22 hard roll and a soft roll.

23 11. A method according to claim 10 wherein the soft roll has a diameter of  
24 from 4 to 20 inches and a hardness of from 5 to 100 shore D.

1 12. A method according to claim 10 wherein the soft roll is comprised of  
2 rubber.

3 13. A method according to claim 10 wherein the hard roll is a cooled metal  
4 chill roll capable of maintaining a temperature below 120°F.

5 14. A method according to claim 11 wherein the two roll nip has pressure  
6 between 20 and 200 pounds per linear inch.

7 15. A method of using at least one of ethylene methyl acrylate copolymer  
8 and ethylene normal butyl acrylate copolymer to manufacture a carpet,  
9 the carpet comprising a tufted primary backing with a primary backing  
10 and tufts of carpet fibers penetrating a bottom surface of the primary  
11 backing and protruding from a top surface of the primary backing; a  
12 secondary backing material; and an adhesive material binding an  
13 upper surface of the secondary backing material to the bottom surface  
14 of the tufted primary backing; the carpet fibers, primary backing  
15 material and secondary backing material being selected from the group  
16 consisting of polypropylene, polyester, acrylics, polyethylene,  
17 polyamide, nylon, wool, cotton, rayon and combinations thereof and  
18 the adhesive material comprising an amorphous polyethylene  
19 copolymer selected from the group consisting of ethylene methyl  
20 acrylate and ethylene normal butyl acrylate; the method comprising the  
21 steps of:

22 a) extruding a heated sheet of the adhesive material; and

23 b) continuously fusing together in a two roll nip the upper surface of  
24 the secondary backing and the bottom surface of the tufted primary  
25 backing with the heated sheet.

1 16. A method according to claim 15 wherein the two roll nip comprises a  
2 hard roll and a soft roll.

3 17. A method according to claim 16 wherein the soft roll has a diameter of  
4 from 4 to 20 inches and a hardness of from 5 to 100 shore D.

5 18. A method according to claim 16 wherein the soft roll is comprised of  
6 rubber.

7 19. A method according to claim 16 wherein the hard roll is a cooled metal  
8 chill roll capable of maintaining a temperature below 120°F.

9 20. A method according to claim 17 wherein the two roll nip has pressure  
10 between 20 and 200 pounds per linear inch.

11 21. A method of recycling a carpet, the carpet comprising a tufted primary  
12 backing with a primary backing and tufts of carpet fibers penetrating a bottom surface of the primary backing and protruding from a top  
13 surface of the primary backing; a secondary backing material; and an  
14 extruded adhesive material or a coextruded blend of two or more  
15 extruded adhesive materials binding an upper surface of the secondary  
16 backing material to the bottom surface of the primary backing; the  
17 carpet fibers, primary backing material and secondary backing material  
18 being selected from the group consisting of polypropylene, polyester,  
19 acrylics, polyethylene, polyamide, nylon, wool, cotton, rayon and  
20 combinations thereof and the adhesive material comprising an  
21 amorphous polyethylene copolymer selected from the group consisting  
22 of ethylene methyl acrylate and ethylene normal butyl acrylate; the  
23 method comprising the step of melting the carpet to obtain an  
24 extrudate feedstock.

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